

Tennessee Capacity Development Plan Asset Management Addendum

The America's Water Infrastructure Act of 2018 requires, in part, that states incorporate into their capacity development strategies approaches to encourage the development of Asset Management Plans (AMP) at public water systems (PWS) and assist in training appropriate personnel in implementing such plans. To fulfill this requirement, the Tennessee Department of Environmental and Conservation (TDEC) has prepared this addendum to its Capacity Development Plan Strategy approved by EPA in 2000. The strategy consists of short-term temporary efforts and includes long-term permanent efforts to ensure future PWS asset management plan development and implementation. TDEC utilized a contract with the Tennessee Association of Utility Districts (TAUD) to develop a framework for Asset Management Plans and to conduct training sessions, specifically for small and disadvantaged systems, in different regions of the state during 2022. Training included sessions on requirements of the five core elements and resources available to water systems to develop an Asset Management Plan. TAUD will also be providing training for the Tennessee Infrastructure Scorecard ver. 2.0 which is designed to benchmark technical, operational, managerial, and financial performance of utility systems. The Infrastructure Scorecard contains an AMP module for systems to self-assess any AMP gaps or needs.

To create the AMP guidance document, TDEC gathered small working groups from TDEC programs along with TAUD (rural water) and brought in drinking water, engineering services wastewater program as well as the State Revolving Fund (SRF) program to lay out the various AMP requirements across TDEC's Division of Water Resources (DWR) programs. In addition, we sought input and feedback from private industry. TDEC also referenced EPA resources and pulled from state programs around the nation. This approach took best practices from both the public and private sector to build a comprehensive AMP standard. TDEC's goal was to establish a unified AMP framework that could satisfy the drinking water program, wastewater program, and State Revolving Fund program while acknowledging the importance of a scalable standard for systems large and small. TDEC looked at Indiana, North Carolina (asset inventory and assessment protocol) and Southwest Environmental Center for AMP examples.

Our first step in creating a cross program standard was to solicit feedback from the AMP working group on the Infrastructure Scorecard module. This approach gave the state flexibility to incorporate the 5 AMP categories outlined by EPA while developing water system specific questions in each category. TDEC then rolled up the AMP module into a prioritized list of critical AMP needs. When a system completes the module, the Scorecard Summary will red flag any deficiencies with their AMP.

ASSET MANAGEMENT		
Asset Mangement Plan	No	In
GIS Mapping	0-25%	M G:
Inventory and Condition Assessment	Yes	Tr
Planned O&M and Work Order System	No	
Meter Testing & Changeouts	No	
Capital Improvement Plan & Budget	No	
IT Infrastructure	No	

Figure 1: Example AMP summary from Infrastructure Scorecard

The second step is to have the system follow the AMP guidance framework. The framework is a combination of a guidance document and an excel spreadsheet. The spreadsheet consists of asset inventory and condition assessments as well as assets criticality based on probability and consequence of failure. This information rolls up to a final spreadsheet in the workbook that lists capital needs in order of critical, risk of failure importance. TDEC worked with a third-party consulting group specializing in AMP (Blue Cyprus) to complete the recommended changes in the final AMP guidance framework, which included adding a section one the “Level of Service” component.

Short Term efforts

To assist in deployment of American Rescue Plan (ARP) funding, the Division of Water Resources (DWR) has established a contract with the Tennessee Association of Utility Districts (TAUD) who built a customizable framework for Integrated (using a common framework) Asset Management Plans (IAMP). IAMPs will assist entities with developing a long-term funding plan for the management and upkeep of assets. IAMP's will include drinking water and another water infrastructure (i.e., stormwater, wastewater). AMP's will include a single water structure type.

In support of IAMPs, TAUD will provide the following to entities eligible for ARP grant dollars, as approved by the State.

1. Direct technical assistance and support to aid in completion and review of IAMPs to ensure, among other goals, that entities' IAMPs will comply with ARP grant requirements;
2. Webinar series on multiple topics related to IAMPs as approved by the State. The Contractor (TAUD) will provide at least fifteen webinars over the Term of this Contract. In 2022, TDEC focused on ARP grants and developing the AMP framework. TDEC with TAUD delivered 2 classes in 2022 and TAUD will perform webinars in 2023;
3. Assistance in developing up to fifty long-term funding plans for small or disadvantaged communities by completing for each community:
 - A businessaction plan;
 - A capital improvement plan;
 - A financial strategy plan;and
 - Updates and maintenance to IAMPs and long-term funding plans as needed; and Direct and indirect technical assistance as needed.

Members of the stakeholders' group such as the Tennessee Association of Utility Districts and Communities Unlimited conducted training sessions in different regions of the state during 2022. Training included sessions on requirements of the five core elements and resources available to water systems to develop an Asset Management Plan. TAUD also provided training for the [Tennessee Infrastructure Scorecard](#) ver. 2.0 which is designed to benchmark technical, operational, managerial, and financial performance of utility systems. These scorecards identify critical needs in several areas including asset management summarizing of what is reflective of TMF. The Tennessee Infrastructure Scorecard ver. 2.0 was complete on November 1, 2021. Hundreds of public drinking water systems have completed their Scorecard and submitted it to TDEC for review. Systems are using the Scorecard to support requests for Water Infrastructure Investment Plan grants issued through the State Water Infrastructure Grants program. The Scorecard identifies (5) areas of critical needs for drinking water systems. These critical areas include asset management plans, significant non-compliance, water loss, aging infrastructure passed its useful life, and failing infrastructure (including capacity issues).

Attached is a PDF sample of the Infrastructure Scorecard. PWSs are required to submit a summary as part of the application to demonstrate critical needs and justify spending decisions. An additional deliverable of a Capital Improvement Needs Inventory from their AMP is also required prior to grant close out. These self-assessment materials assist systems identify where best to spend grant and loan dollars. The State Water Infrastructure Grant (SWIG) program, Community Development Block Grant (CDBG), and SRF will continue to use this tool into the future to support funding awards. In addition, the Bureau of Environment (BOE) and Tennessee Emergency Management (TEMA) are interested in using the reported Risk and Resiliency module for funding priorities to help systems improve their emergency preparedness.

The development and modification of the TN Infrastructure Scorecard was executed using a project management plan style of development.

- **Goal:** Assist small and/or disadvantaged public drinking water systems improve technical, managerial, and financial capacity.
- **Objective:** Develop tools
- **Pre-Development:** Gathered stakeholder group (Technical Assistance Advisory Committee) of drinking water leaders from the drinking water program, engineering services at TDEC, TDEC policy leaders, management from the Drinking Water State Revolving Fund, TN Comptroller's Office, Community Block Development Grant, USDA Rural Development, TN's Rural Water Association (TAUD) and select technical staff from DWR. We connected with approximately 25 individuals from 10 different agencies/organizations (public and private) for pre-development. TDEC received feedback from stakeholders. TDEC conducted 2 rounds of comments on draft AMP framework and completed comments from the independent consulting firms KCI and Blue Cypress.
 - Establish a list of chronic issues and technical assistance needs
- **Tool Development:** Work with Advisory Committee
 - Assigned small working group of experts for each of the critical needs category
 - Created a timeline for small task execution; develop a simple, quick, quantitative suite of questions or an equation focused on critical need
 - Brought all working group results together to draft an initial tool based on best practices methods used from previously developed stream morphology condition assessment.
 - Draft TN Infrastructure Tool was tested and edited by Advisory Committee members and technical staff at DWR.
 - Final tool completed by TAUD
- **Launch TN Infrastructure Scorecard ver. 1.0:** Selected 30 small and disadvantaged communities with systems that are struggling. The Opportunities List sorted data from small and disadvantaged systems to prioritize assistance for those systems with significant TMF issues, including non-compliance. TAUD worked with the 30 systems to complete the excel based, multi-worksheet self-assessment tool. Systems review their financial status over the past three years, population served, rates, age of treatment and distribution systems, water treated, purchased, and sold, source water, treatment type, unaccounted water loss, failing elements of treatment and distribution, energy and water conservation practices, status of asset management plans, and risk and resilience for emergencies.

- **Evaluate:** TDEC evaluated the impact and benefits the TN Infrastructure Scorecard may have for the systems and the agencies. Systems were given full reports and spreadsheets on the data. The state aggregated the data from the Scorecards to determine if there was a need and pattern to small system issues. TDEC found asset management plans, aging and failing infrastructure, and water loss were issues for the majority of the systems.
 - Feedback loop-DWR gave presentations on the process and results to many local, state, and national groups looking for feedback.
- **Improve:** TDEC regathered the Technical Advisory group to discuss the results of the yearlong beta-testing. All agencies and members agreed the data was valuable. But to improve the usability for systems we needed to create a Summary module.
 - Correct all issues and bugs found in version 1.0.
 - Improve questions and quantitative assessment of questions
 - Structure a summary based on most relevant components and connect needs to a plan to improve utility systems over time
 - Establish a framework to guide systems on how to create a comprehensive asset management plan that meet SRF requirements and Drinking Water Program requirements as it applies to the SDWA expectations
 - Improve the user interface and ability to aggregated data and evaluate results on a local and statewide scale.
- **Re-launch TN Infrastructure Scorecard ver. 2.0:** TDEC was set to relaunch the Scorecard through the SRF's Small and Disadvantaged Community Technical Assistance program funded through the PWSS set-aside dollars in fall of 2021. Simultaneously, TDEC secured \$1.35 billion in ARPA stimulus funds for drinking water and wastewater infrastructure. DWR, with the support of the drinking water program and SRF, offered the use of the TN Infrastructure Scorecard as a self-assessment tool for all systems to identify critical needs for water infrastructure projects. Use of the Scorecard was supported by TDEC and the Governor's team to ensure best use of funds as well as maximize return on investment.
 - **Pivot:** Quickly work to right-size the tool for use by any size system and accessed through a web-based portal.
 - Stakeholder outreach and engagement deployed statewide
 - Training of hundreds of water system officials/operators for use of Scorecard and Evaluation of Summary, incorporate results into planning for ARP non-competitive grant if Summary showed critical needs; education and outreach focusing on small and disadvantaged communities
 - Over 450 systems have completed the Scorecard. At least half of them are drinking water systems.
- TN Scorecard is in use now on every ARP grant application as a decision-making tool for use of funds. The grantees will also be obligated to submit a final Scorecard Summary so the state can quantify any return on investment of ARP dollars for addressing critical needs.
- TDEC will be working with Community Development Business Grant (CDBG) and Bureau of Environment (BOE) as well as former Technical Advisory members to build on lessons learned in version 2.0 for the update to Scorecard version 3.0 in fall of 2023.
- TDEC is still exploring the options to pursue other components of the state's approach to asset management – including regulation updates and incorporating asset management into state regulations, sanitary surveys, and enforcement by looking at other states rules.

- 76% of Public Water Systems did not have a comprehensive AMP based on infrastructure scorecard results.
- In April of 2022 TDEC launched a \$1 billion dollar water and wastewater infrastructure grant with American Rescue Plan funds. The grant contract requires all participating systems to complete an Infrastructure Scorecard to identify critical needs and every system must demonstrate they comply with the AMP guidance template by the end of the grant term, September 30, 2026.
- DWR received approximately 350 applications with \$990M in requests for water, wastewater, and stormwater infrastructure funding to address critical needs. Drinking water systems in all 95 counties are participating in this program.

Long Term efforts

DWR will continue utilizing the infrastructure scorecard to help drive funding assistance for development and implementation of AMP once ARP funding expires.

TN Public Water Systems rule change. TDEC plans to modify rule 0400-45-01-.04(6) to ensure the definition of Capacity Development Plan includes an Asset Management Plan (AMP) component. This would be required of all public water systems. TDEC plans to consider adopting regulatory revisions during the next rule change based on EPA's LCR rule revisions.

[0400-45-01-.04 (6) "Capacity Development Plan" means a document(s) identifying what actions a public water system is taking or shall take to become a "viable water system." Such plan shall include information concerning retention of a Certified Operator in direct charge; system ownership and accountability; staffing and organizational structure; fiscal management and controls, source water assessment and protection plan; "business plan", asset management plan and any and all other information identifying any further action that shall be taken.]

Sanitary Survey Manual Revision. TDEC plans the inclusion of asset management as an item to be addressed in the Sanitary Survey inspections. The existence of an Asset Management Plan would be discussed during the survey and addressed in the narrative section of the report. PWS identified as in need of developing an AMP would be directed to the TDEC/SRF website where resources such as the template would be available. Revisions to the Sanitary Survey Manual are expected within the next 1-3 years.

State Revolving Fund Loan Program. The DWR SRF program will include an Asset Management Plan question to the Capacity Development Review Checklist. This ensures systems receiving SRF funds have a CDP and an AMP that complies with the minimum standard established by TDEC. SRF does not have a point system for AMPs in the ranking criteria. However, in January of 2023, SRF will be meeting with EPA Region 4 to specifically discuss needed improvements to the DWSRF ranking system. We will inquire with Region 4 on the potential to add AMP points to the ranking system. This would encourage PWSs to develop AMPs and ensure that systems receiving SRF funds have evaluated its assets with regard to financial capacity. Priority checklists for SRF will include language that the PWS must have a Capacity Development Plan which includes an Asset Management Plan. TDEC is working with EPA to discuss modifications of the priority ranking list in 2023.

DWR Compliance and Enforcement staff will consider and prescribe the development of asset management plans in enforcement orders when it is determined that the systems lack financial capacity is contributing to the non-compliance issues. It is possible that TDEC will use the list from the Comptroller's WWFB and UMRB financial distress list which is based on annual audits and the boards require asset management plans in orders for those systems. TDEC could also request an AMP with every system on the financial distress list or simply request this document from the Comptroller's Office if they have required it of the system. DWR also checks the financial distress list on all the environmental reviews.

TDEC DWR will develop a web presence for Asset Management Plan information which will include the IAMP developed by TAUD and other resource links for reference. TDEC will include this information under our Capacity Development program once finalized. We should have a dedicated AMP page by summer of 2023.

The implementation strategies, as described above, will ensure that systems in immediate need for AMPs will be identified via the Tennessee Infrastructure Scorecard. The ongoing regulatory activities such as the inclusion of AMP in sanitary surveys, review of finances during audits by the comptroller's office, and inclusion of AMPs in enforcement orders will assist in identifying systems that may need AMP or AMP revisions. Lastly, the inclusion of the AMP as a component of the SRF priority ranking will be a subsequent check and will incentivize PWS who do not have an AMP that is current to do so. All PWSs in TN will be required to maintain AMPs; training will be provided for new PWSs.

The TN Office of the Comptroller requires annual financial audits of local governments, which includes governmental water and wastewater systems. The annual audits are reviewed to ensure the utility is in compliance with applicable state laws and regulations. When a water or wastewater system has a statutory decrease in net position for two consecutive fiscal years, the utility is referred to the Water and Wastewater Financing Board or Utility Management Review Board. Both Boards are tasked with rectifying the financial, technical, and managerial issues of the utility. For these problems to be corrected, a comprehensive financial assessment is necessary to generate a corrective plan moving forward. An important aspect of this assessment is a review of the utility's rates and asset management initiatives. Generally, the Boards order the utility to contract with a third party to complete the assessment needed to ensure the utility is on the best path forward.

Once a comprehensive AMP is developed, the utility should treat the AMP as a "living" document. The AMP should be updated annually as assets age, new assets are added, maintenance is performed, and the level of desired service mandates the replacement of assets. The original AMP and annual updates to the AMP give a utility's management and governing board important and relevant information on the maintenance and replacement of aging water infrastructure. This information can be used in capital budget planning to ensure that the utility's financial resources are used efficiently and effectively to maintain and improve the utility's infrastructure. We will be in touch with our training partners providing ongoing communications.

Education and outreach are always a challenge. The understanding of what an AMP is and how it needs to be a living document is low across the state. To combat this barrier, TDEC will continue to partner with TAUD to provide direct and indirect technical assistance on AMPs. We will also develop a website and host AMP workshops if warranted.

In addition, funding AMP is also a barrier. Recently, TDEC spent 6 months negotiating with the Comptroller of the Treasury on the permissibility of awarding SRF loans for AMP. SRF lost the argument based on the Comptroller's expectation that AMPs are operation and maintenance activities. While this may be true for systems that have an AMP in place, it is not the case for 76% of the systems across the state. In 2023, TDEC intends to release AMP specific grants with SRF money, effectively improving the funding assistance for systems to complete their AMP. Although the state would have preferred a loan product, we are overcoming that barrier by switching to a grant. Those are the two primary barriers to implementing AMP plans statewide. We are working diligently to overcome them.

TDEC will determine the efficacy and progress of asset management efforts by summarizing the number of systems that completed an AMP through the American Rescue Plan grants and have applied for and were awarded a DWSRF loan. These funding programs are supporting this important and developing regulation/requirement for AMPs. Proposed tracking information will be presented in the Triennial Report to the Governor.